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# RESEARCH NOTE

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## CISTUS, FUEL MOISTURE, AND FLAMMABILITY

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Cistus, a woody evergreen shrub from Mediterranean lands, has been suggested as a good candidate for watershed plantings in southern California because it supposedly is low in flammability. But the whole story on flammability of cistus is not known: no one has been able to compare fire behavior in mature stands of cistus in southern California with fire behavior in native plant cover of known flammability. A recent study indicates that cistus is not greatly different from chamise in one important fuel characteristic--moisture content of living plants.

Moisture contents of adjacent chamise and cistus plants were sampled monthly from April to December 1959 on the Cajon district of the San Bernardino National Forest. The xylene distillation method 1/ was used to determine moisture content (percent dry weight) of living stems and leaves of 8 plants of rock rose (Cistus purpureus) 3 years old and 24 chamise (Adenostoma fasciculatum) plants 20 years old.

Moisture content of cistus was relatively high during the spring, dropped rapidly in early summer, and approached that of chamise by July 16 (fig. 1). During the fire season, only 6 to 12 percent in moisture content by dry weight separated cistus from chamise. This difference may have been due to age differences between the species.

Other chaparral species have similar advantages over chamise in moisture content but are known to be highly flammable under extreme weather conditions. Scrub oak is a good example. It does not burn readily under average conditions, yet burns extremely hot in hot, dry weather.

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1/ Buck, C. C., and Hughes, J. E. Distillation method for determining moisture content of forest litter. Jour. Forestry, 37(8): 645-651. 1939.

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Although cistus has no marked moisture advantage over chamise, a species of known fire behavior, moisture content is only one factor in relative flammability. Other characteristics, such as chemical composition, weight per acre, and ratio of living to dead material, need to be studied. Furthermore, studies should be carried out in mature stands to be most meaningful. The only conclusion to be drawn from this study is that if cistus is a fire resistant plant, the reason is probably not high moisture content.

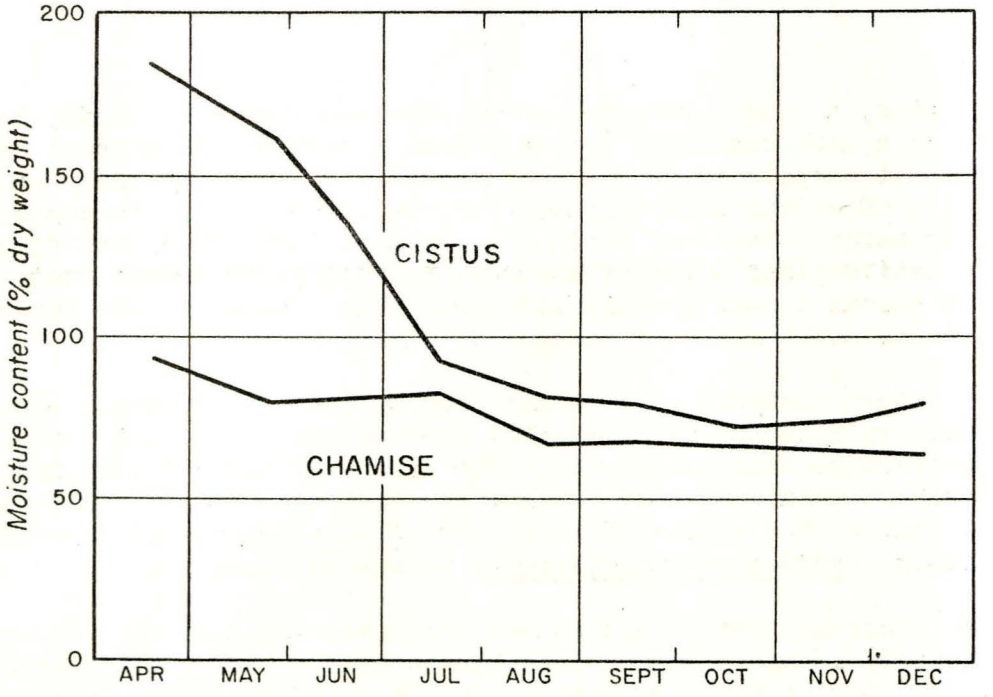


Figure 1.--Moisture content of cistus and chamise at Lost Lake Plots--San Bernardino N. F. - 1959.